CONFIGURING AND MONITORING DATA VOLUMES IN A CONSOLIDATED STORAGE ARRAY USING ONE STORAGE ARRAY TO CONFIGURE THE OTHER STORAGE ARRAYS

Abstract of the Disclosure

In a storage area network having a host device and a consolidated storage array (CSA), one of the storage arrays of the CSA acts as a primary device of the CSA to form logical data volumes across one or more of the total storage arrays of the CSA. The logical data volumes typically have performance requirements that cannot be met by a single storage array. Upon receipt of a command from the host device to create one of the logical data volumes, the CSA primary device analyzes the storage arrays to determine a combination thereof, across which the logical data volume will be striped, that best satisfies the performance requirements. The CSA primary device configures these storage arrays to form the logical data volume and sends striping information, which defines the logical data volume, to the host device. Striping software based on the host device responds to the striping information to access the logical data volume. The CSA primary device also manages the storage arrays and the logical data volume by monitoring the storage arrays to determine whether any of the storage arrays is about to reach its saturation point, typically due to changing performance requirements of all of the logical data volumes on the storage arrays. The CSA primary device then migrates a portion of one of the logical data volumes from one storage array to another to balance the data transfer loads on the storage arrays.